SEA&SEA

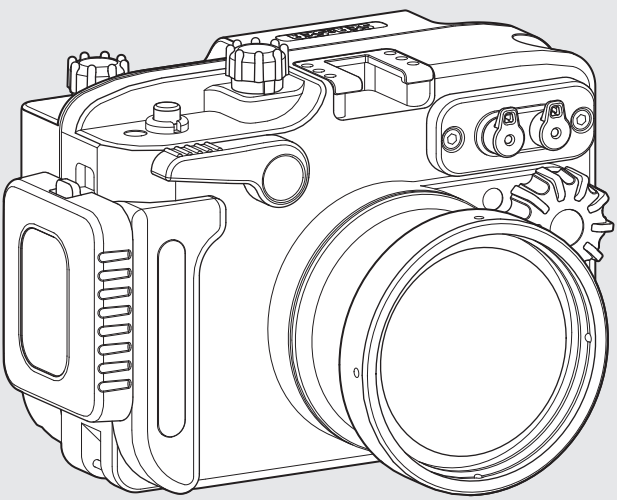
06160

UNDERWATER HOUSING for Fujifilm X10

MDX-X10

日本語

English



取扱説明書
Instruction Manual

Introduction

Thank you for purchasing SEA&SEA products.
Please read this instruction manual carefully prior to using this product. Only with a thorough understanding of this manual's content will you be able to use the housing correctly. After reading the manual, please be sure to keep it in a place where you can easily come back to it at any time.

Note:

Pressure-resistance inspection sticker

Products bearing this sticker are those that have passed SEA&SEA's criteria-based inspection for pressure resistance.

The appearance of color evenness or weld lines on the external body of the product is normal and will not affect its performance.

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Safety Precautions

For safe handling of the product, please read the following precautions carefully before use.

Failure to heed the precautions listed below could result in serious consequences. To prevent injury or damage to yourself and/or others, please observe the precautions as they contain highly important information related to personal and product safety.

⚠WARNING Situations that could result in severe injury or death.

⚠CAUTION Situations that could result in property damage or personal injury.

⚠WARNING

- Keep out of reach of children to prevent accidental ingestion. If swallowed, seek medical advice immediately.

⚠CAUTION

- Carefully observe the instruction manual for the compatible camera for this product before use.
- This product has been designed and manufactured for use at a water depth within 100m / 330ft. Please note that diving to a depth in excess of 100m / 330ft may cause damage to the product or may lead to water leakage.
- Unauthorized disassembling and/or modification could result in malfunction or flooding, and void product warranty. Take the product to a SEA&SEA authorized service center for repair or inspection.
- Should you notice smoke or an unusual smell coming from the product, turn it off and remove the batteries immediately, taking care to avoid burns. Continued operation could result in injury. After removing the battery, take the product to a SEA&SEA authorized service center for inspection.
- Discontinue use and turn the product off immediately should you notice flooding or leakage.
- When the product is flooding, interior pressure may build up. Please be careful when opening the product as water may spurt out or the cap may open explosively and cause injuries.
- The product has been constructed with an airtight seal. When packing the product for airplane travel, do not seal-up the product to alleviate pressure build up due to atmospheric changes.
- Do not open the product in a wet or sandy environment. Protect the interior from moisture and debris in order to prevent malfunction or flooding.
- Avoid strong shocks/impacts or excess stress to prevent malfunction, damage or breakdown. Make sure that the product has been securely mounted to other products in order to prevent injury, fall or missing.

- Do not rest heavy weight on the product. It might deform the outer casing, damage internal parts, make the waterproofing fail, or result in fire or electric shock.
- Please note that some marks may be left on the camera scraping against the dials or gears of the housing.
- Handle the product carefully so as not to scratch the front port, the lens, the flash window or the finder.
- Always dry the front port, the lens, the flash window or the finder using a soft cloth to prevent stain or salt residue from marring the glass surface.
- Rinse the product with fresh water, after underwater use. Ensure that the product is waterproofed before rinsing. Refer to [Maintenance and Storage] (P.E-19) for details.
- Make sure that the connectors have been secured with the connector caps before rinsing the product with fresh water, after removal from other products.
- Never use chemicals, cosmetics, any petroleum solvents such as paint thinner, or neutral detergent on the product. They may deform and damage the product.
- Do not leave the product in places with hot temperatures such as inside of a car or in a car trunk in summer. The heat may deform plastic parts of the product, damaging internal parts and resulting in potential fire or electric shock. If the product is sealed tight in hot conditions, heated air expanding inside the product may deform the casing and ruin the waterproofing.
- Do not store the product in wet or high humidity place, to avoid mold, rust, corrosion or malfunction.
- Do not store the product with naphthalene or camphor mothballs, or in locations such as a laboratory where chemicals are used. This environment can cause mold, rust, corrosion or malfunction.
- SEA&SEA SUNPAK Co., Ltd. assumes no liability for compensation of loss of captured images or expenses caused by loss of images, even if you are unable to shoot due to a product defect or malfunction.
- SEA&SEA SUNPAK Co., Ltd. will not be responsible for the replacement or compensation for cameras, lenses or those accessories damaged due to your invalid operation.
- SEA&SEA SUNPAK Co., Ltd. assumes no liability for errors or discrepancies in this manual.
- Carefully observe the O-ring maintenance manual for the handling of O-rings before use.
- The silicon grease included in the product package is inedible.

Precautions on Handling the O-ring

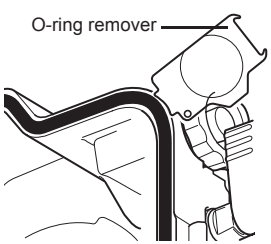
This product is kept watertight by the O-ring. To keep the O-ring functioning properly, please observe the following. Improper handling of the O-ring could cause flooding.

⚠CAUTION

- SEA&SEA products use blue O-rings. These O-rings are impregnated with silicone oil through a special process. The lubricating effect of the O-ring lasts as long as the silicone oil is gradually seeping out from within.
- For the maintenance of these blue O-rings, make sure to use genuine SEA&SEA silicone grease (O-ring grease for use with the blue O-rings that comes in tubes with blue lettering and blue caps). If you use silicone grease from other companies or SEA&SEA's own silicone grease that comes in tubes with black lettering and black caps, the grease you apply will be sucked into the blue O-rings due to their special characteristics, which will result in insufficient grease. If this happens even once, the O-ring will not revert to its normal state and must be replaced.
- If the grease is insufficient, the O-ring will not slide, and it will become harder to open and close the waterproof parts. Because of this, it could become impossible to open or close the housing or it could cause flooding, so please refrain from using the housing with insufficient grease.

Are there any scratches or cracks in the O-ring?

Check the O-ring to make sure there are no scratches or cracks. If there are, replace the O-ring with a new one immediately. When handling the O-ring, do not use pointed metal objects, which could damage the O-ring. Use of the included O-ring remover is recommended.

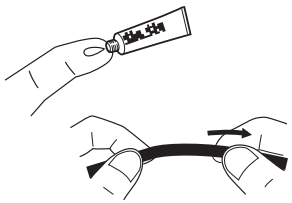


Be careful about dust, sand, and hair

Check the O-ring to make sure that there is no dust, sand, or hair on the O-ring, in the O-ring's grooves, or on the O-ring's contact surfaces. If any of these things are attached, remove them completely. If used as is, these things could cause flooding.

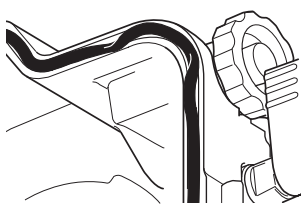
Coat with silicone grease

Silicone grease protects the O-ring from chafing. After checking the O-ring to make sure that there are no scratches, dust, or debris, apply a light coating of silicone grease to the entire O-ring with your finger. Applying too much grease will make it easier for dust and debris to adhere to the O-ring, and could cause flooding.



Do not twist the O-ring

When fitting the O-ring into the O-ring groove, insert it straight into the groove; do not bend or twist it.



Remove the O-ring for inspection before each use

In principle, the O-ring should be removed before each use so that the O-ring, O-ring groove, and O-ring contact surfaces can be checked. This is because you cannot find any sand or debris that may have gotten into the O-ring groove if the O-ring is not removed. For routine maintenance prior to each use, it is advisable to make sure to remove the O-ring.

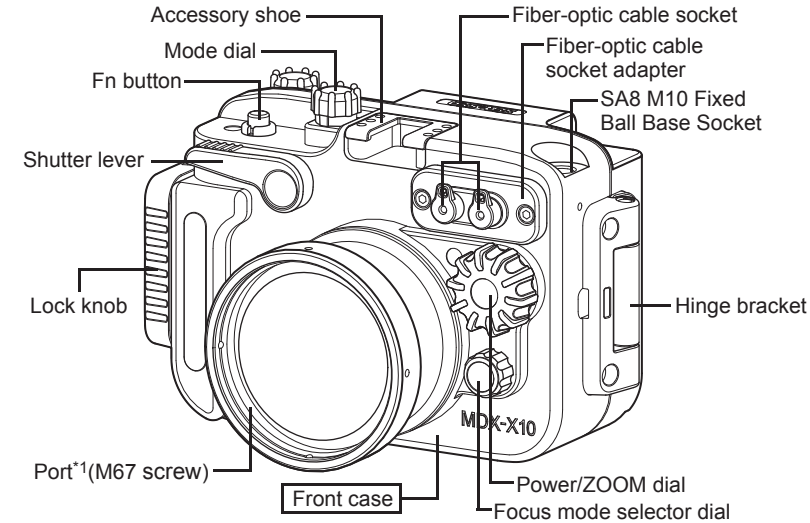
Be careful about how you store O-rings

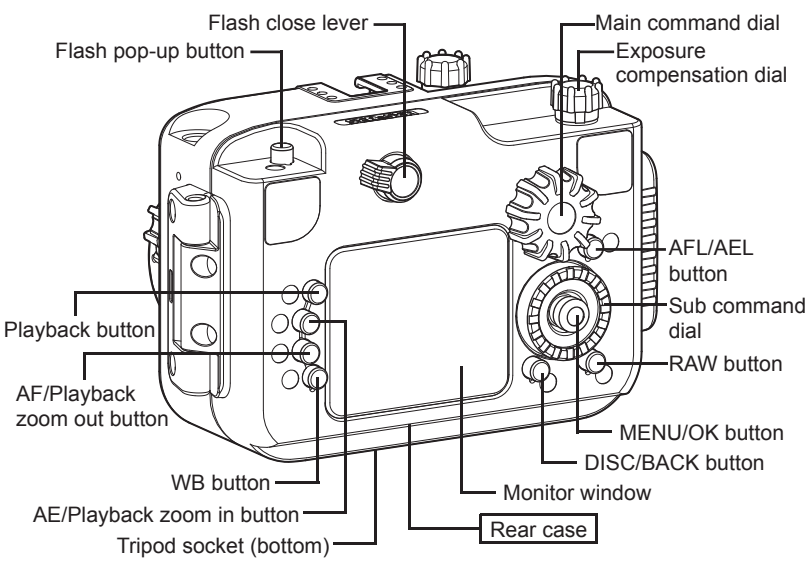
When storing spare O-rings or O-rings that you have removed from the housing, keep them in a cool place out of direct sunlight. Also, when storing O-rings, do not place heavy objects on them or twist them.

O-rings last for one year

Although it depends on how well they are maintained, how often they are used, and how they are stored, O-rings generally last for one year. It is advisable to inspect them before use, and replace them early.

Identification of Parts





*1 A wide-angle conversion lens or an M67→M62 Step Down Ring can be screwed onto the front.

Preparation for Setting Up

This product must be used in combination with the optional equipment (digital camera, port, strobe, accessories etc.) for underwater photography. In order to set up the equipment, prepare each item correctly.

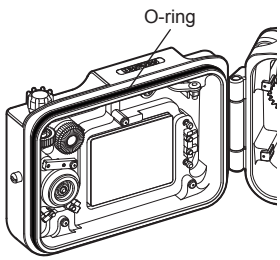
Prepare the housing and port

- The port on this product is built into the housing and thus cannot be removed.

Maintaining the O-ring

This product is kept watertight by the O-ring. To keep the O-ring functioning properly, please observe the following before setting up.

- Make sure to remove the O-ring when maintaining.
- For detailed O-ring maintenance methods, please see the O-ring maintenance manual.



⚠CAUTION

- Make sure to fit/install the O-ring into the groove properly after maintenance.

Prepare the digital camera

This product is exclusively designed for use with Fujifilm X10 digital camera. Other cameras are not compatible with this product.

- Make sure that there is sufficient battery power remaining and the image storage medium has enough room for the number of pictures.
- Remove the strap from the camera if any of these accessories are attached.
- Make sure the camera is operating correctly, referring to the camera's instruction manual for details.

Prepare the connecting accessories

When using external strobes, lights or other accessories in combination with this product, prepare the equipment before setting up.

- If the accessories are kept watertight by O-rings, make sure the O-rings are properly maintained.
- If the accessories are powered by batteries, make sure that there is sufficient battery power remaining.
- Make sure the equipment is operating correctly, referring to the instruction manual provided with the equipment.

Opening and Closing the Housing

Opening and closing the housing is done with the lock knob. Here we will explain how to open and close the lock knob.

Opening the lock knob

1 **Push the tab outward to unlock as indicated by ①, and rotate the lock knob clockwise as indicated by ② to lift the rear cover from the front case (Fig. 1)**

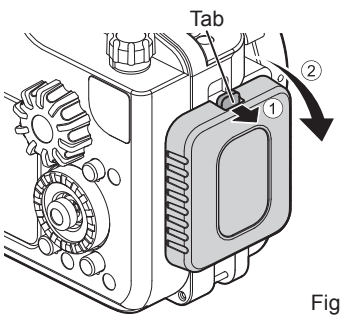


Fig.1

2 **Pull the rear case to open (Fig.2)**

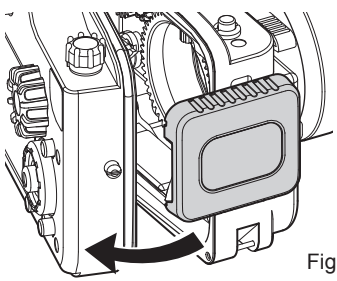


Fig.2

⚠ CAUTION

- Before opening the rear case, make sure that the housing is completely dry and free of salt deposits. If you find any salt deposits, rinse with fresh water and wipe off water completely with a soft cloth.
- Never turn the knob without pulling the tab, as it may result in damage to the knob.
- The lock knob only turns up to 90 degrees. The lock knob may become damaged if it is turned forcibly.
- When pulling the tab outward, be sure to use the tips of your fingers, not your fingernails.
- Never use the tab/lock knob underwater.

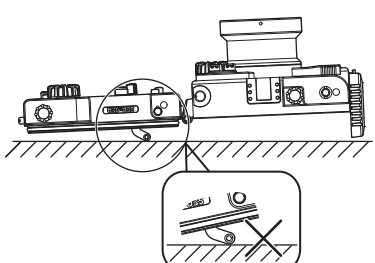
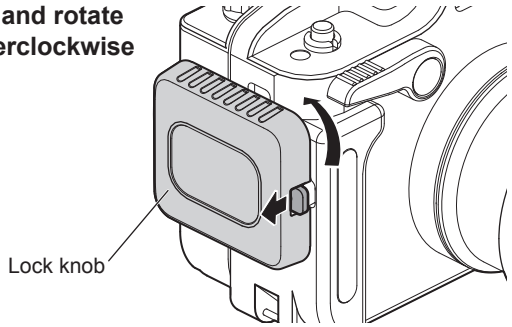


Fig.3

- Do not place the housing on desks or other tabletop surfaces with the rear case opened and the inner side facing down. Be careful as doing so may cause the projection on the rear case to become deformed or damaged. (Fig. 3)
- When opening the rear case after use in the water, open it carefully not to let water or sand enter inside the housing.

Closing the locking lock knob

1 **Close the rear case, and rotate the lock knob counterclockwise**



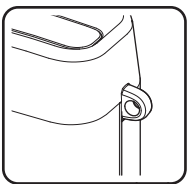
⚠CAUTION

- Before aligning the rear case and front case, make sure there are no specks of dust, acratches, or deformities on the O-ring and O-ring contact surfaces.
- Check to make sure that the locking lock knob is securely locked.

Mounting the Camera in the Housing

⚠CAUTION

- To avoid flooding by trapping, remove the strap / protective cover / metal strap clips from camera before installation.



1 **Place the anti-reflective tape on the lens nameplate (part A) on the camera**

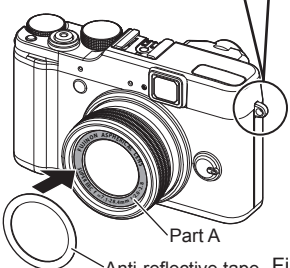


Fig.1

2 **Push the gear for the power/zoom dial into the lens part of the camera until it stops**

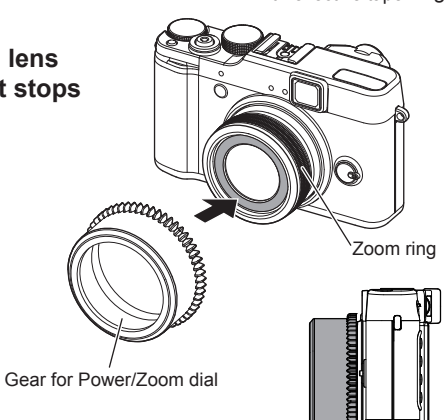


Fig.2

3 **Set the mark on the power/zoom dial on the housing to the OFF position**

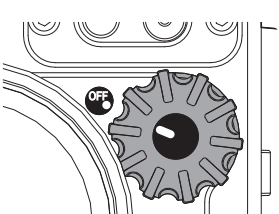


Fig.3

4 Turn off the power of the camera and place it as shown in Fig.4

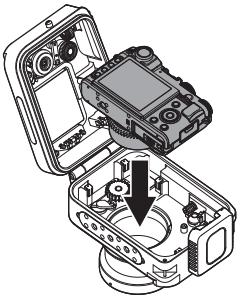


Fig.4

5 Make sure that there is no dust or scratches on the O-ring / O-ring contact surface before closing the rear case. Then close the rear case and close the lock knob

⇨See:
"Opening and Closing the Housing" (P. E-9)

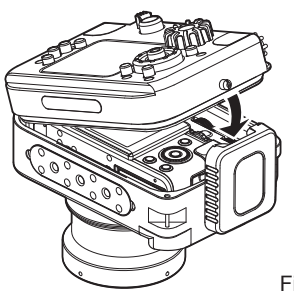


Fig.5

⚠CAUTION

- A substantial difference between the external (water) and the internal (camera and air) temperatures sometimes result in dewfall on the inside surface of the housing lens. This phenomenon typically happens when the camera becomes hot due to long and consecutive use. Use the optional Silicagel (62108) as shown in Figure 6 to reduce dew condensation.
- After the camera is mounted in the housing, make sure to check that all of the housing's control parts work properly and the camera functions correctly.

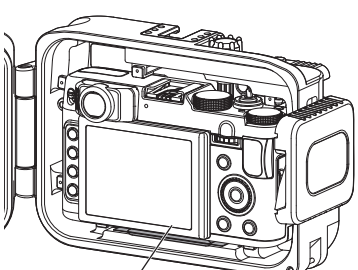


Fig.6

Removing the camera from the housing

1 Turn the lock knob

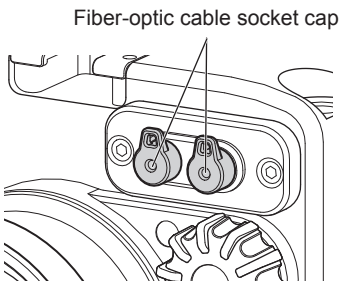
2 Open the rear case

3 Remove a camera from a front case

Connecting the Strobe

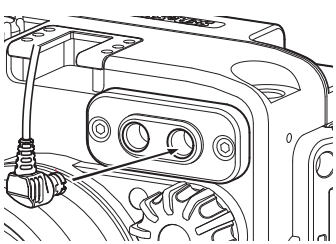
Connect the strobe with the fiber-optic cable (option) when the strobe is triggered by sensing the light from the camera's built-in flash.

1 **Remove the fiber-optic cable socket caps**



2 **Insert the fiber-optic cable's connector into the socket until it stops**

- Do not remove the caps from fiber-optic cable sockets not in use to keep light from entering in.



⚠CAUTION

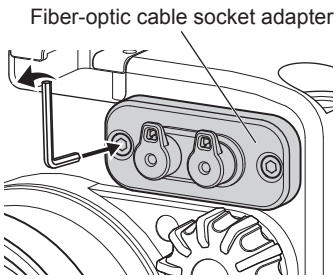
- Before inserting the fiber-optic cable, check to make sure that there are no scraches or dirt on the connector surface. Scratches or dirt may cause the strobe to malfunction.
- To protect the surface from scratches or dirt, do not remove the caps from the fiber-optic cable sockets when the cable is not inserted.
- There is no possibility of water leaking from the fiber-optic cable socket even if the fiber-optic cable/cable socket cap is removed underwater.
- After the strobe is connected to the housing, make sure to check that the connected strobe functions correctly before underwater use.
- After each use in salt water, make sure to remove the fiber-optic cable socket adapter from the housing, and then thoroughly soak the adapter and housing in fresh water.

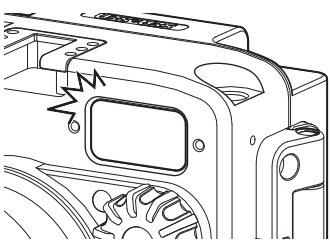
Use the camera's built-in flash

If planning to use the built-in flash on the camera, remove the fiber socket adapter from the housing.

1 **Remove the two screws for the fiber-optic cable socket adapter on the housing by inserting the accompanying hexagon wrench into each and turning counterclockwise**

- The fiber-optic cable socket adapter can be removed with the fiber-optic cable socket cap attached.
- Please make sure not to lose the removed parts.



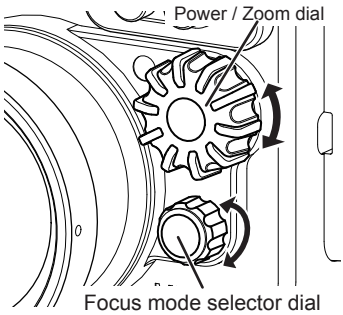


External Controls

Power / ZOOM dial

By rotating the dial as indicated, you can turn the power ON/OFF and change the zoom angle.

- Due to how the port on the housing is structured, the zoom range on the camera is limited to 85 mm on the tele side.

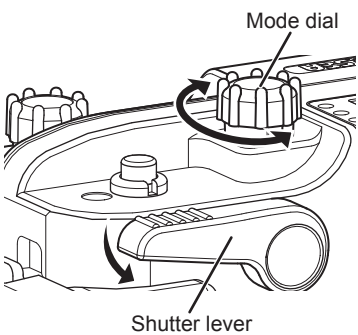


Focus mode selector dial

Turn the dial up and down to change the operation mode.

Shutter lever

Depress the shutter lever to press the shutter button of the camera.



Mode dial

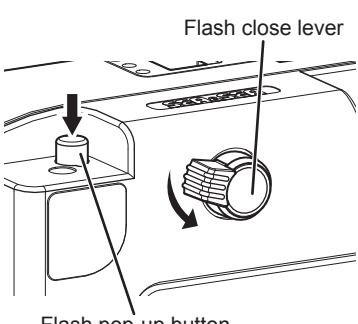
Turning this dial changes the shooting mode.

Flash pop-up button

The built-in flash on the camera will pop up when the button is pushed.

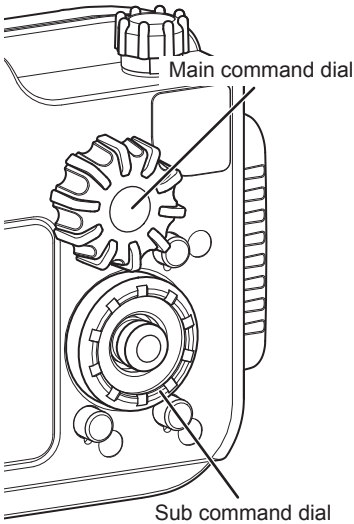
Flash close lever

Push the flash close lever down to stow the built-in flash on the camera back into the camera.



Main command dial

Rotate the dial to enable operation. In addition, you can also change the settings in M mode by pushing the button in the middle of the dial.



Sub command dial

Rotate the dial to enable operation. In addition, you can select items using the top and bottom or right and left buttons (▲、▼、◀、▶) instead of the selector button on the camera.

Other controls

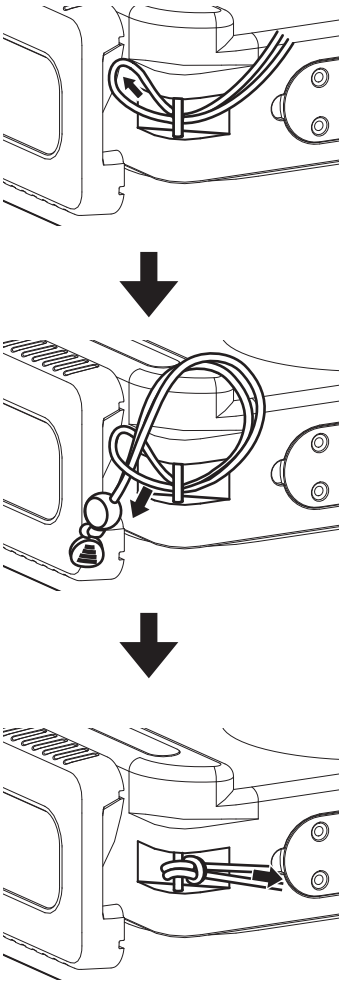
Other control parts on the housing correspond to the operation parts of the digital camera. Refer to the camera's instruction manual for details of each function.

⚠CAUTION

- After mounting the camera in the housing, make sure to check that all of the housing's control parts work properly and the camera functions correctly before underwater use.

Attaching the Hand Strap

1 **Push one end of the hand strap through the hook on the housing, insert the other end through the loop produced, and then pull the strap tight as shown**



⚠CAUTION

- Do not use the strap when out of water if using optional accessories (such as a wide-angle conversion lens, stay, arm, and strobe / light). The increased weight of the accessories may damage the strap and the strap hook, which may result in equipment damage / loss or personal injury.

Attaching the Optional Accessories

This product accepts SEA&SEA optional accessories. By using this product in combination with those accessories, you will be able to try various shooting techniques.

⚠CAUTION

- Lenses, strobes and other accessories have different depth rating. Check the depth rating for each before use.
- Read the instruction manual for each accessory before use.
- After each use in salt water, make sure to remove the optional accessories from the housing, and then thoroughly soak the accessories and housing in fresh water.

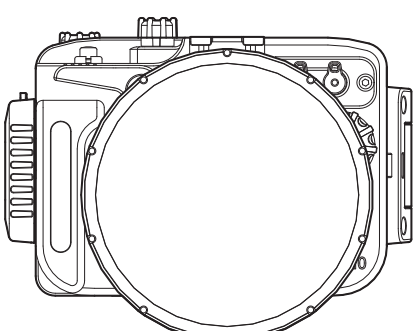
Wide-angle conversion lens

The tip on the port of this product will accept a SEA&SEA M67 wide-angle conversion lens (52122)

* Specifications and appearance are subject to change without notice.

(Current as of Mar. 2012.)

<Example>



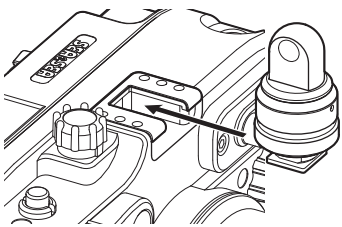
⚠CAUTION

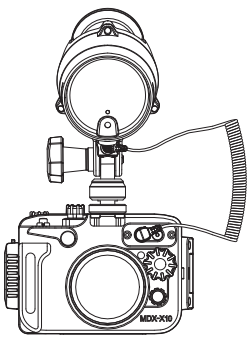
- Refer to the instruction manual provided with the M67 Wide-Angle Conversion Lens for details.

Accessory shoe

Strobes / lights can be mounted to the accessory shoe by using optional Mini Shoe Arm (29511) or Hot Shoe Arm (29501) or SA8 Ball Base for Accessory Shoe (22120).

<Example>





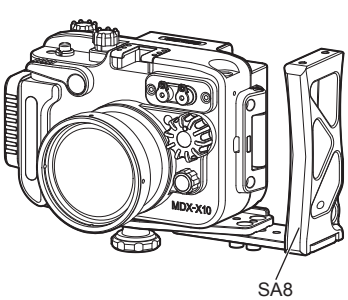
⚠CAUTION

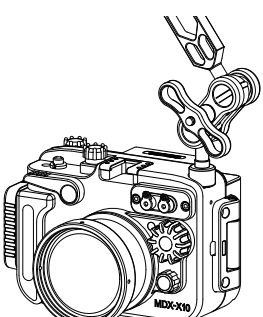
- The max. weight of an accessory that can be mounted to the accessory shoe is approx. 1050g / 36.75oz .
- Remove the accessories from the accessory shoe when carrying the housing out of water.
- When attaching the accessories to the accessory shoe, always refer to the instruction manual provided.

Stays / Arms

SEA&SEA stays/ arms can be mounted to the housing's tripod socket.

<Example>

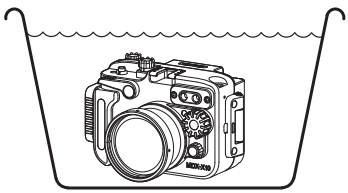




Maintenance and Storage

⚠CAUTION

- Never use chemicals, cosmetics, any petroleum solvents such as paint thinner, or neutral detergent on the product. They may deform and damage the product.
- After each use in salt water, make sure it's watertight, then soak it sufficiently in fresh water.
- Insufficient soaking causes damage by salt to the product. Salty residue may be left on the product where it will crystallize as it evaporates. Crystallized salt is hard to dissolve and difficult to be removed once formed, and it will result in water leakage.



- After rinsing, dry the product well with a soft dry cloth, then let the product dry in the shade, out of direct sunlight.
- Do not dry the product by heating (using a hair dryer, for example). Heating can deform and damage the product.
- If you will not use the product for an extended period of time, store it away from high temperatures, high humidity, direct sunlight, or extreme cold.
- Do not store the product with naphthalene or camphor mothballs, or in locations such as a laboratory where chemicals are used. This environment can cause mold, rust, corrosion or malfunction.
- Always remove the camera from the housing after use. Thoroughly wipe off water before opening the housing and avoid any water drops inside the housing.
- After using the product, maintain the O-rings before storing. Examine the O-rings before and after each dive. We recommend early exchange of the O-rings, at least once a year.
- Every two years we recommend a complete overhaul of O-rings regardless of the frequency in use, for the best performance of the product.

Specifications

Compatible camera	Fujifilm X10
Controls	ON/OFF/Zoom dial, Focus mode selector dial, Shutter lever, Fn button, Mode dial, Flash pop-up button, Flash close lever, Exposure compensation dial, Main command dial, AFL/AEL button, MENU/OK button, Sub command dial, RAW button, DISC/BACK button, WB button, AF/playback zoom out button, AE/playback zoom in button, Playback button
Construction	Body: Corrosion-resistant aluminum alloy
Depth rating	100m (330ft)
Dimensions	Approx. 165(W)×105(H)×125(D) mm
Weight	Approx. 1100g(housing only)
Accessories	・Silicone grease ・O-ring remover ・Anti-reflective tape ・Gear for Power/Zoom dial ・Hexagon Wrench (3mm/For removing the fiber-optic cable socket adapter) ・O-ring maintenance manual ・Instruction manual (this manual) **Attached accessories to the product :** ・Port cap ・Fiber-optic cable socket adapter ・Fiber-optic cable socket cap (x2) ・Hand strap

* The specifications and appearance are subject to change without notice.

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